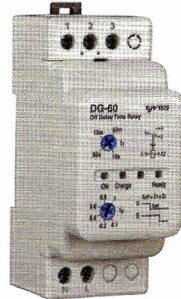


Time Relays

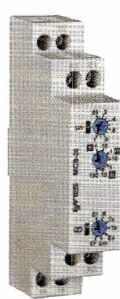
MCB - SER - ERT - SSR - DG Series



SER-Y/U



DG-60



MCB-20



MCB-9



ERTC-01



PRODUCT SELECTION TABLE

Product Table			Time	(Er)	(Em)	(R)	(Es)	(Ts)	(Ta)	Symmetric Flasher (Ef)	Control Input	ON Flasher	OFF Flasher	Down-timer	Star-Delta	Left-Right	No Voltage, Delayed Impulse	24 VAC / DC	230 VAC	12~240 VAC / DC	24~240 VAC / DC	Pcs / Carton
ERT-01	Multi-function T. Relay	1s - 100 h		●	●	●	●				●	●	●	●					●			16
ERTC-01	Multi-function T. Relay	1s - 100 h		●	●	●	●				●	●	●	●					●			16
MCB-7	Time Relays	0,1s - 30 h		●	●													●	●			10
MCB-8	Time Relays	0,1s - 999 min		●	●													●	●			10
MCB-9	Time Relays	0,1s - 60 h		●	●							●	●					●	●			10
MCB-15	Multi-function T. Relay	0,05s - 100 h		●	●	●				●	●									●		10
MCB-20	Multi-function T. Relay	0,1s - 100 h		●	●	●	●	●	●	●	●									●		10
MCB-30	Time Relays	2-30s		●														●	●			10
MCB-60	Time Relays	4-60s		●														●	●			10
SER-YU	Star-Delta Relays	(Λ/U) 20-500ms (Λ) 1-60s													●			●	●			10
SSR-2X	Left-Right Relays	0,1s - 60 h														●			●			24
DG-10	Time Relays	0,6s - 10m															●		●			10
DG-60	Time Relays	0,1s - 60m															●		●			10
EF-10	Flasher Relays	1 - 10 s / 0,5 s										●						●	●			10
EF-10T	Flasher Relays	1 - 10 s / 0,5s										●						●	●			10
ERB-50	Washing M. Relay	Washing 30, 60, 90,120,180s, Waiting 3s, Rinsing 1-30s																	●			20

SPECIFICATIONS

	MCB-15	MCB-20	EF-10	MCB-7/8/9	MCB-30	MCB-60	SSR-2X	ERB-50	ERT-01	ERTC-01	SER-Y/U	DG-10/60	EF-10T
ENCLOSURE													
Dimensions	PK27		PK22			PK15		PK21	PK20		PK28		PK10
Protection Class	IP40		IP20						IP40-IP20		IP20		
Weight	0,1kg;10 pcs /carton					0,1kg; 24pcs		0,3kg; 20pcs	0,25kg; 16pcs		0,1kg; 24pcs		0,3kg; 10pcs
SUPPLY													
Operating Voltage	24-240 VAC/DC	12-240 VAC/DC	230VAC& 24VAC/DC			230 VAC		230VAC 110VAC		230VAC& 24VAC/DC		230 V AC	
Operating Range	for Un±%20(AC) ; for Un±%10(DC)												
Power Consumption	< 4 VA		< 8 VA			< 4 VA		< 3 VA		< 8 VA		< 3 VA	
OUTPUT													
Repetition Error	±5msec.							±0.1					
Reset Time	=100 msec.		< 150 msec.			100 msec.		80 msec.		120 msec.		-	
Output Contact	1 CO; 8 A, 2000 VA, cosφ=1					2 CO; 8A, 2000VA, cosφ=1		1 CO; 8A, 2000VA, cosφ=1		2 NO; 5A,1250VA		1 CO; 16A,4000VA	Triyak; 8A,600VA
AMBIENT CONDITIONS													
Ambient Temperature ; Humidity						-5 / +50°C ;85 %							
CONNECTIONS													
Mounting	Rail Mounted,terminal with screw												
Connection Types	Single phase 2 wires												

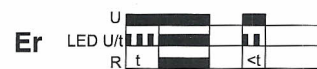
Time Relays

MCB - SER - ERT - SSR - DG Series

Functions of MCB-15 and MCB-20 (12~ 240V AC/DC)

ON Delay (Er) [MCB-15 & MCB-20] :

When the supply voltage U is applied, the set interval t begins (green LED U/t flashes). After the interval t has expired (green LED U/t illuminated) the output relay R switches into on-position (yellow LED illuminated). This status remains until the supply voltage is interrupted. If the supply voltage is interrupted before the expiry of the interval t, the interval already expired is erased and restarted when the supply voltage is next applied.



Single shot leading edge voltage controlled (Em) [MCB-15 & MCB-20] :

When the supply voltage U is applied, the output relay R switches into on-position (yellow LED illuminated) and the set interval t begins (green LED U/t flashes). After the interval t has expired (green LED U/t illuminated) the output relay switches into off-position (yellow LED not illuminated). This status remains until the supply voltage is interrupted. If the supply voltage is interrupted before the interval t has expired, the output relay switches into off-position immediately. The interval already expired is erased and restarted when the supply voltage is next applied.



OFF Delay with control input (R) [MCB-15 & MCB-20] :

The supply voltage U must be constantly applied to the device (green LED U/t illuminated). When the control contact S is closed, the output relay R switches into on-position (yellow LED illuminated). If the control contact is opened, the set interval t begins (green LED flashes). After the interval t has expired (green LED U/t illuminated) the output relay switches into off-position (yellow LED not illuminated). If the control contact is closed again before the interval t has expired, the interval already expired is erased and restarted at the next opening of control contact S.



ON Delay with control input (Es) [MCB-20] :

The supply voltage U must be constantly applied to the device (green LED U/t illuminated). When the control contact S is closed, the set interval t begins (green LED U/t flashes). After the interval t has expired (green LED U/t illuminated) the output relay R switches into on-position (yellow LED illuminated). This status remains until the control contact is opened again. If the control contact is opened before the interval t has expired, the interval already expired is erased and restarted with the next cycle.



Single shot leading edge with control input (Ts) [MCB-20] :

The supply voltage U must be constantly applied to the device (green LED U/t illuminated). When the control contact S is closed, the output relay R switches into on-position (green LED U/t illuminated) and the set interval t begins (green LED U/t flashes). After the interval t has expired (green LED U/t illuminated) the output relay switches into off-position (yellow LED not illuminated). During the interval, the control contact can be operated any number of times. A further cycle can only be started when the cycle run has been completed.



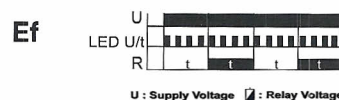
Single shot trailing edge with control input (Ta) [MCB-20] :

The supply voltage U must be constantly applied to the device (green LED U/t illuminated). Closing the control contact S has no influence on the condition of the output R. When the control contact is opened, the output relay switches into on-position (yellow LED illuminated) and the set interval t begins (green LED U/t flashes). After the interval t has expired (green LED U/t illuminated), the output relay switches into off-position (yellow LED not illuminated). During the interval, the control contact can be operated any number of times. A further cycle can only be started when the cycle run has been completed.



Flasher (Ef) [MCB-15 & MCB-20] :

When the supply voltage U is applied, the set interval t begins (green LED U/t flashes). After the interval t has expired, the output relay R switches into on-position (yellow LED illuminated) and the set interval t begins again. After the interval t has expired, the output relay switches into off-position (yellow LED not illuminated). The output relay is triggered at a ratio of 1:1 until the supply voltage is interrupted.



U : Supply Voltage LED U/t : Relay Voltage

Common Functions of MCB-7/8/9; ERTC-01; EF-10/10T

On Delay (Er)

In the On Delay mode, after the device is energized, the timer starts to count up and when it reaches the adjusted time, the relay is energized.

Off Delay (Em-1)

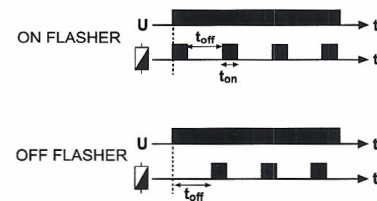
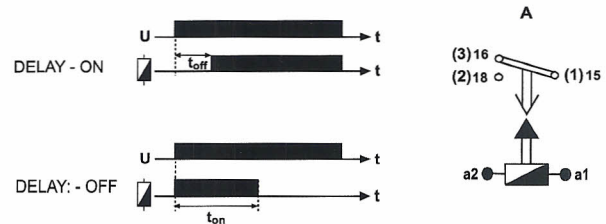
In the Off Delay mode, after the device is energized and with start input, the relay is energized and becomes de-energized at the end of the time adjusted by the user.

Down Timer

In the Down Timer mode, after the device is energized, the down counter starts to count down from the time adjusted by the user and when it reaches zero, the relay is energized.

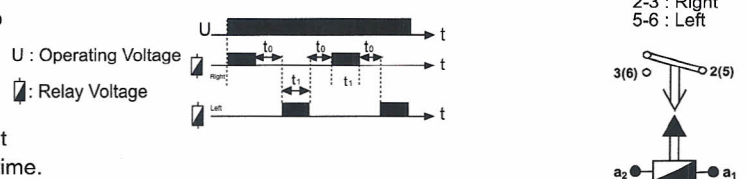
Flasher

In the Flasher mode, after the device is energized, when tOFF time ends the relay is energized and becomes de-energized at the end of the delay. The starting mode of the flasher mode can be chosen as ON or OFF mode. In the OFF mode flasher starts with tOFF and energized after the tOFF value, then continues to tOn mode. In the On mode flasher starts with tOn and deenergized after the tOn value, then continues to tOFF mode. The Flasher function is continuously repetitive.



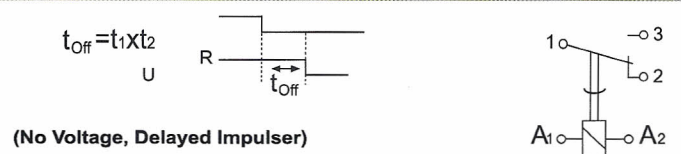
Functions of SSR-2x

When the line voltage is applied, the right output relay starts to work as "switching ON" and the left output relay as "switching OFF". At the end of "t_i" time both of two output relays switch OFF and this condition is kept for "t_o" times. At the end of this period, the left output relay "switches OFF" and the right output relay "switches ON", and this situation is also kept during "t_i" time.



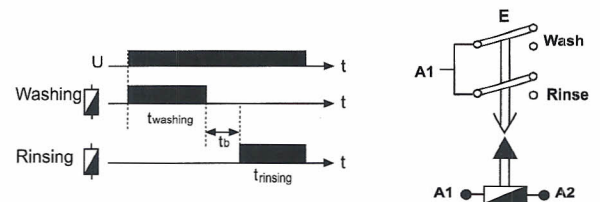
Functions of DG-06 / DG-10 / DG-60

When the supply voltage is off, relay stays energized during adjusted t_{off} time. At the end of that time, output relay turns OFF. If the supply is applied before toff time isn't up, output relay continues to stay energized.



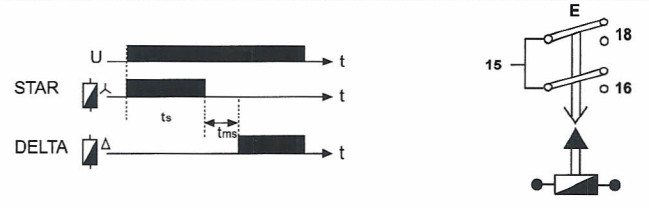
Washing Machine Relay (ERB-30/50)

When the device is energized after one of T1, T2, T3, T4, T5 terminals is short-circuited with the T0 terminal, washing terminal (Wash) gives an output of 220 V. After the waiting time of the selected terminal, 220 V at the Wash terminal is turned off. After a fixed waiting time (10s for Erb-30, 3s for Erb-50), rinsing terminal (Rinse) gives an output of 220 V. Rinsing time can be adjusted between 1 and 30 seconds by using the trimmer on the device. After the adjusted rinsing time, 220 V at the Rinse terminal is turned off. In order to redo the same operation, the device has to be turned off and on again.

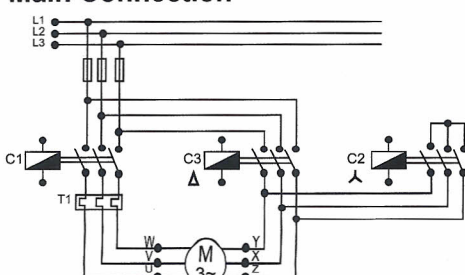


Functions of SER-Y/U

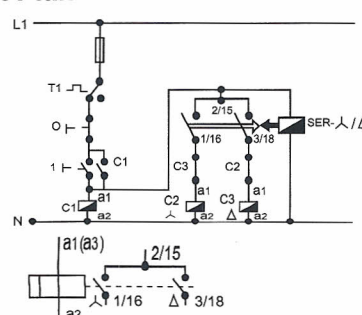
When the operating voltage is applied, the star contacts [(1/16, 2/15) for PK21/PK15, for PK25], are closed and then released after the operating time, t_a. The delta contacts [(2/15, 3/18) for PK21/PK15] are closed after the transition time, t_o = 50 msec (fixed at factory). The fault of the transition time is ± 5 msec. This transition time can be adjusted (to = 20-500 msec.) in PK25 type.



Main Connection



Circuit Plan

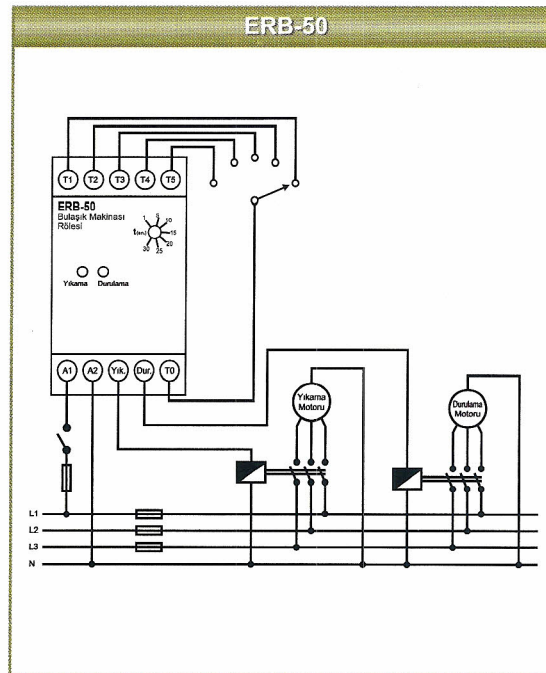
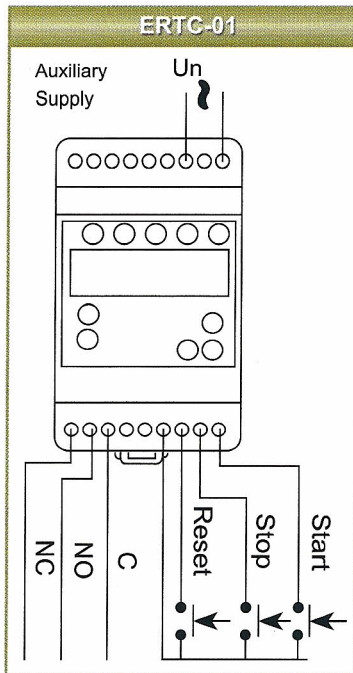


Note: 24 VAC/DC supply of SER - Y/U is applied between A2-A3

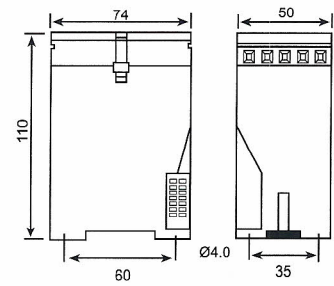
Time Relays

MCB - SER - ERT - SSR - DG Series

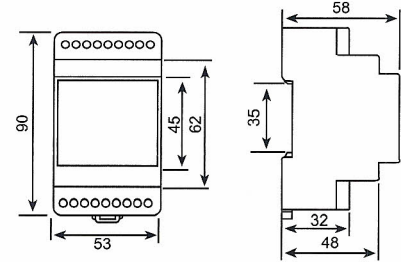
Connection Diagram



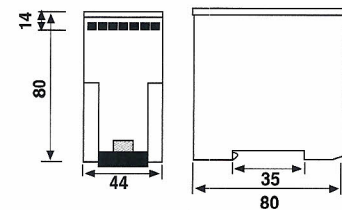
Dimensions



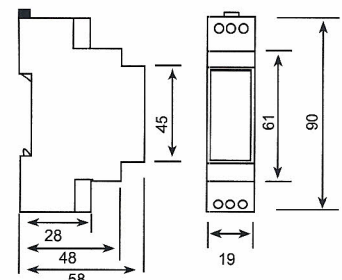
TYPE PK 10



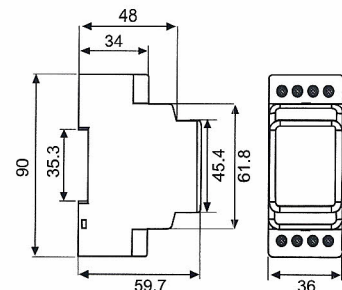
TYPE PK 20



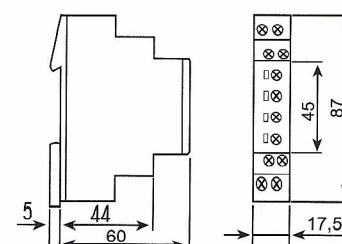
TYPE PK 21



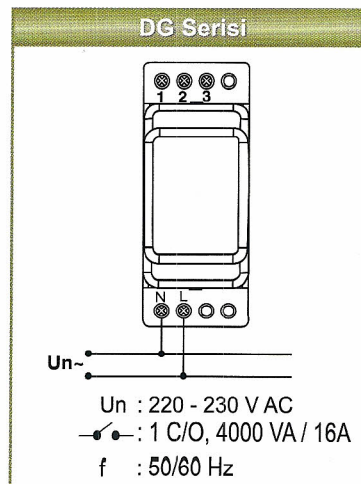
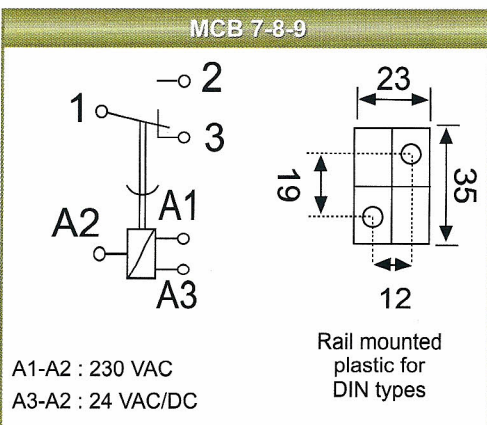
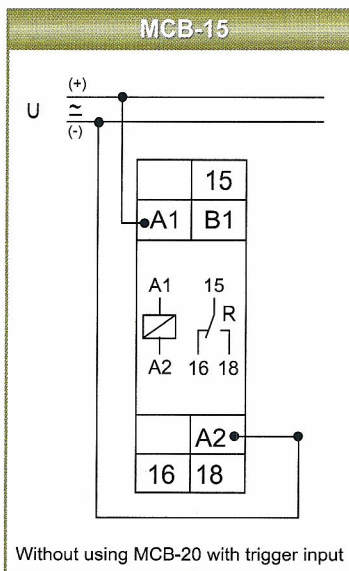
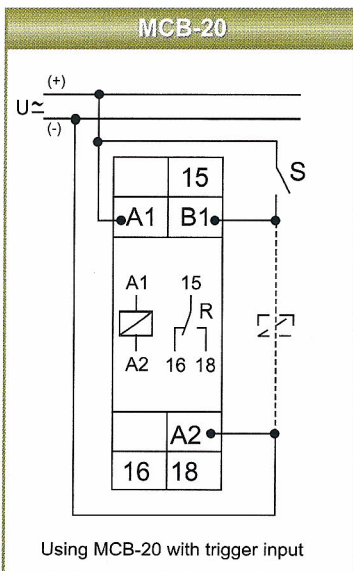
TYPE PK 22



TYPE PK 28



TYPE PK 27



Connection diagrams are given for reference. Please always check the latest user manual given with product or download from www.entec.com.tr